



Country update

Sweden

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Gävle, 12-13 September 2022

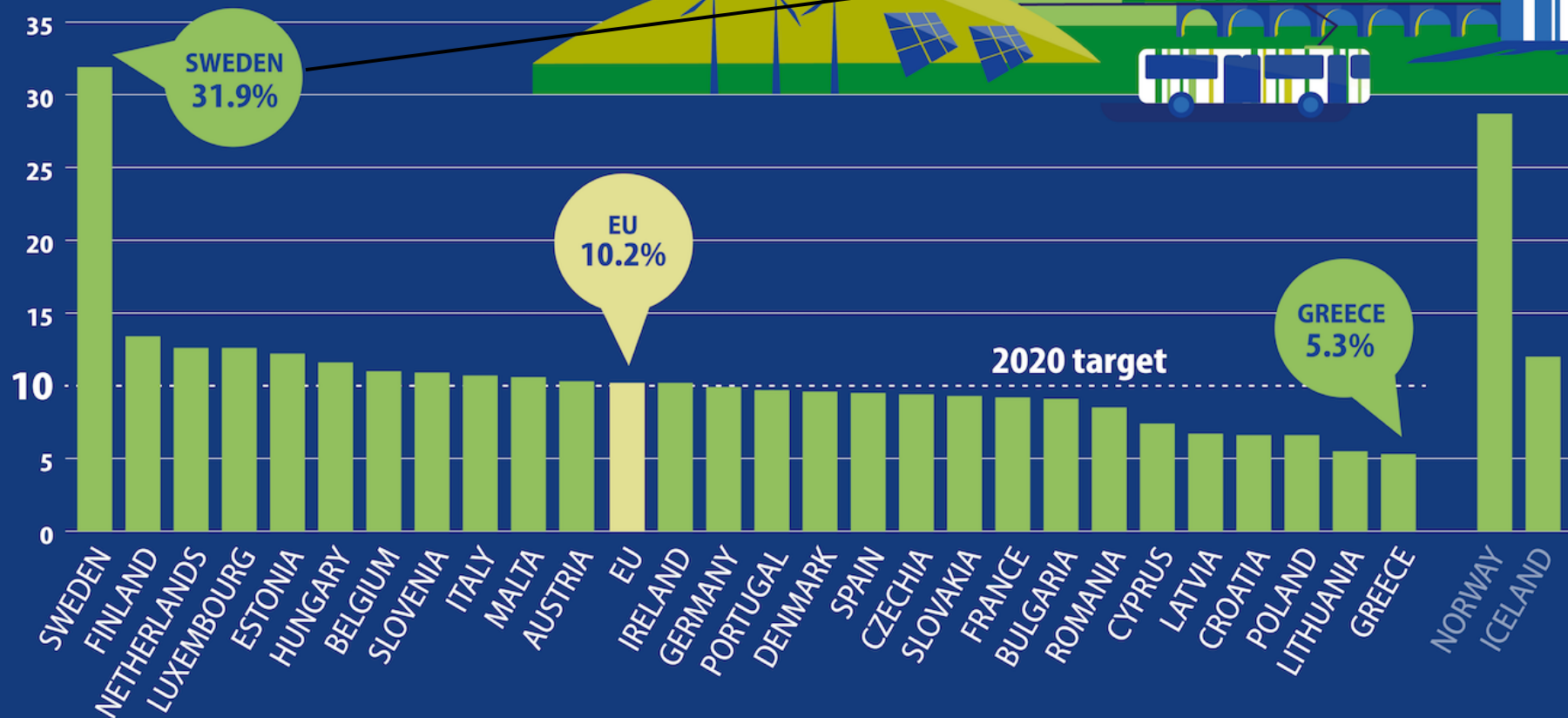
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Sweden is best in its class, or are we?

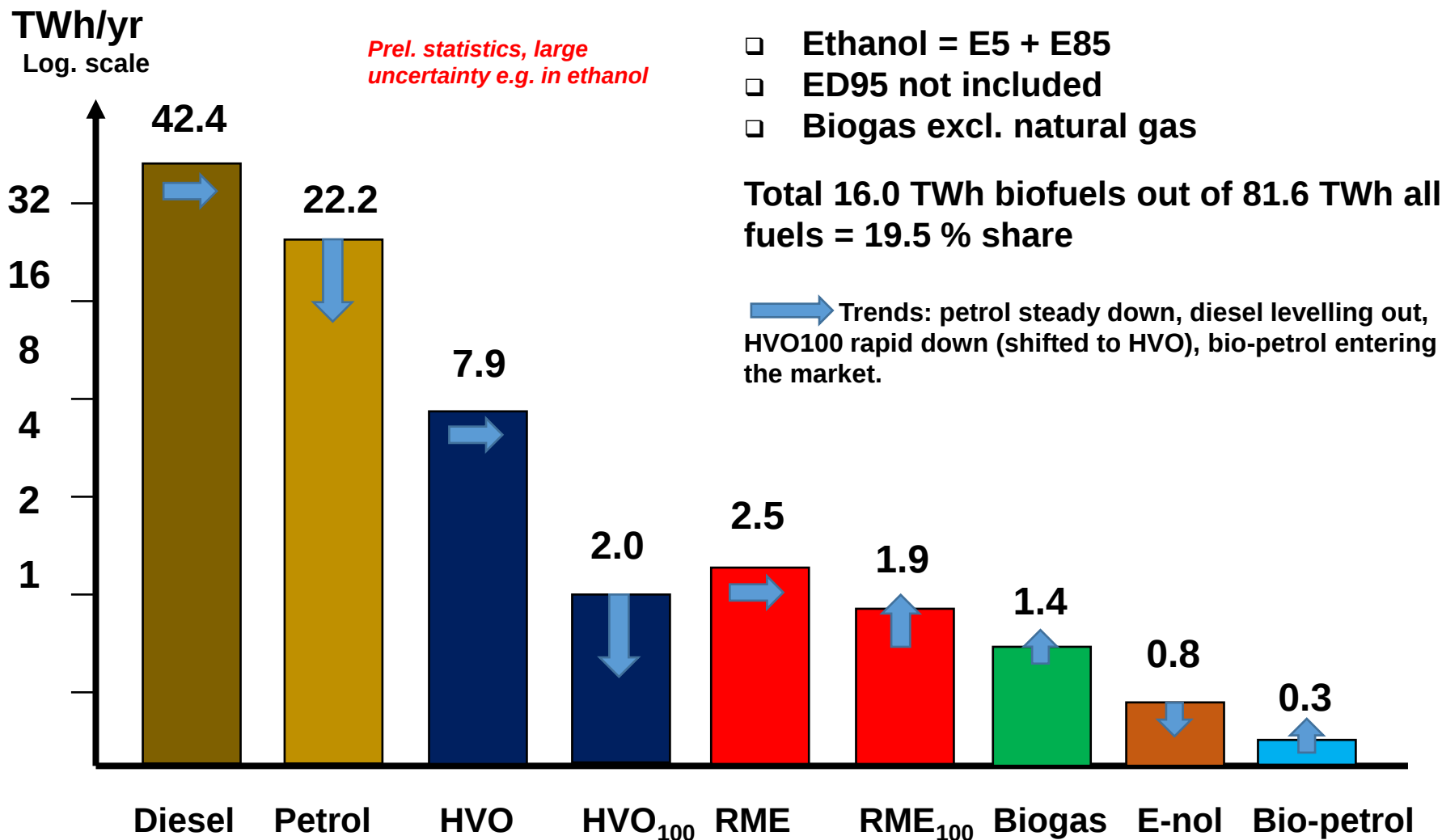
"Double counting" and >85% of biofuels are imported

Energy from renewable sources in transport

% of gross final energy consumption, 2020

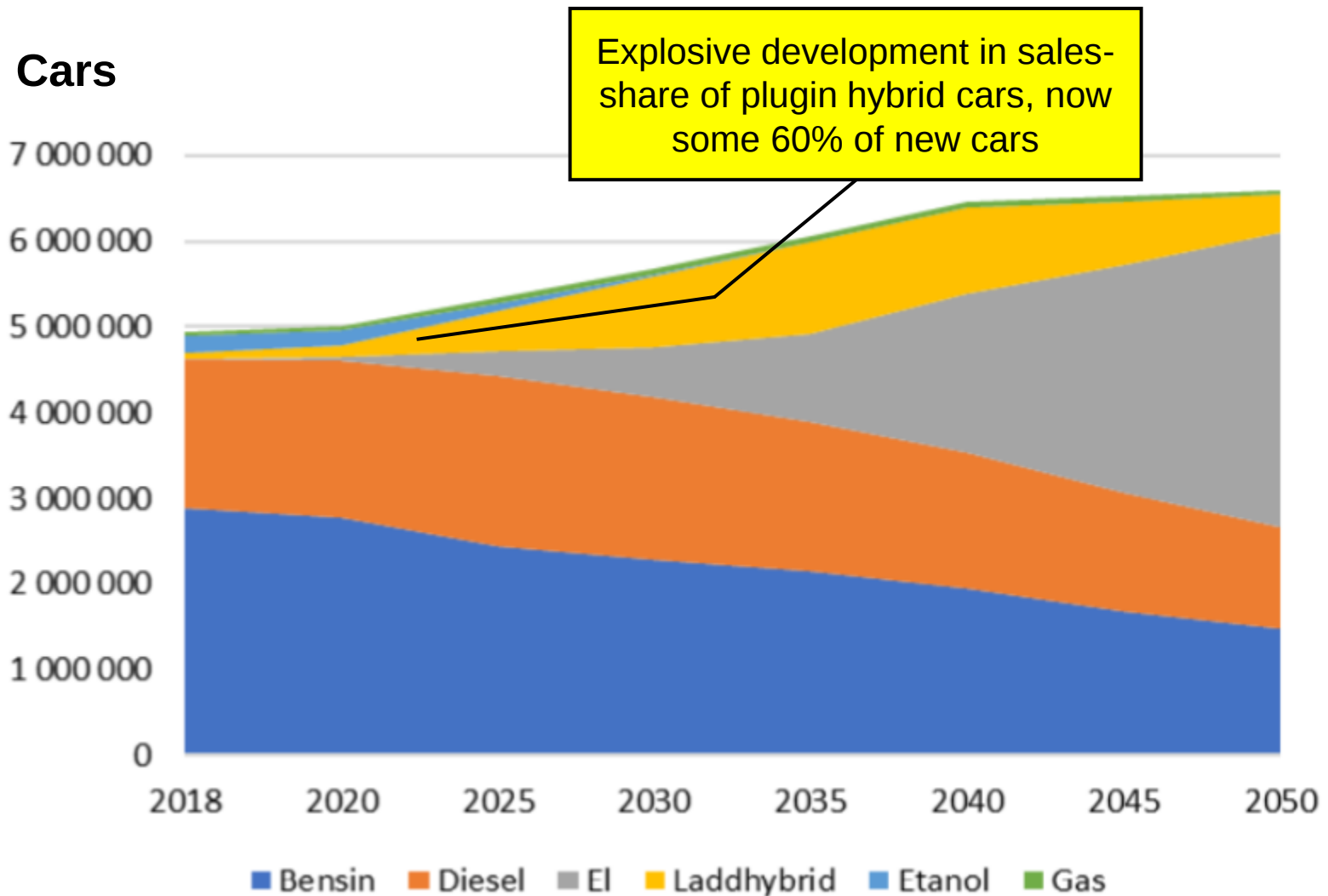


Swedish road transport fuels 2020 w trends



Ref. Statistics Sweden, Deliveries of transport fuels for vehicles, 2021.

Development prognosis of the car fleet



Sudden change in political views for Sweden with current energy crisis and high prices

- Bioenergy is Sweden's largest energy source with 139 TWh and constitutes about 37% of consumption. With high el prices, nuclear is coming back?
- Reduction mandate quotas to 2030, E10 introduced Aug 2021. However, because of extremely high fuel prices a pause in 2023 on the quotas.

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Petrol	4,20%	6%	7.8%	10.1%	12.5%	15.5%	19%	22%	24%	26%	28%
Diesel	21%	26%	30.5%	35%	40%	45%	50%	54%	58%	62%	66%

- Application of ten year tax exemption extension has been sent to EU for new state-aid approval. ILUC cap 7% and multipliers hinders biofuels.
- Change in the EU RED III before even implementing RED II. Parliament vote 12 Sept in EU on use of wood for bioenergy, stringent use of biomass.
- Oct 2021 world's first environmental declaration of fuels on pump stations
- 1 July 2021 reduction quota mandate on all aviation is imposed, starting with 1% and ending with 27 % by 2030, with target of 100% by 2045
- In 2022 we got record-breaking increase to another record high in fuels and electricity prices, starting in August 2021. Typical prices in 2022:
 - Gasoline EUR 2,3/litre 9 dollar/gallon
 - Diesel EUR 2,8/litre 11 dollar/gallon
 - HVO100 EUR 3,2/litre 12 dollar/gallon
 - Electricity spot price varies EUR 0,2-1,0/kWh



Biofuels policy with taxes, uncertain 2023

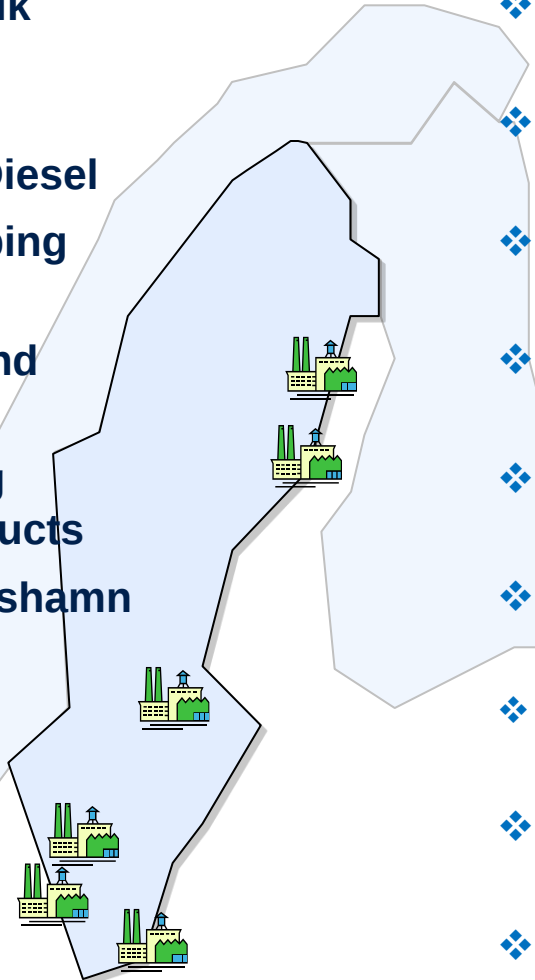
Road transport shall reduce emissions by 70% until 2030 and Sweden shall get zero net emissions until 2045. Sweden has a climate law and develops a circular bioeconomy. Electrification is underway in transport and industry.

Fuel	Comment	Taxes and policy
Petrol	E10, 10% ethanol	Reduction quota mandate 7.8% until 1 Jan 2024
Diesel	B7, 7% FAME + 20-30% HVO	Reduction quota mandate 30.5 until 1 Jan 2024
E85	Summer: 85% ethanol Winter: 75% ethanol	Full tax exemption for biofuel share to 31 Dec 2022
B100	RME100	Full tax exemption to 31 Dec 2022
HVO100	For some cars and most buses and trucks	Full tax exemption to 31 Dec 2022
ED95	95% ethanol for buses and trucks	Full tax exemption to 31 Dec 2022
Bio-CNG	>90% of all bio-CNG is biogas, other is CNG	Full tax exemption to 31 Dec 2030

Promising development for new biofuel plants

Larger plants in operation

- ❖ SEKAB in Örnsköldsvik
23 000 m3 ethanol
- ❖ SunPine in Piteå
150 000 m3 Raw Tall Diesel
- ❖ Agroetanol in Norrköping
230 000 m3 ethanol
- ❖ Adesso in Stenungsund
148 000 ton RME
- ❖ Preemraff Gothenburg
320 000 ton HVO-products
- ❖ Energifabriken in Karlshamn
55 000 ton RME
- ❖ Södra in Mörrum
5000 ton biomethanol
- ❖ Pyrocell in Gävle
26 400 ton pyrocrude
7 Dec 2021



Plants in development

- ❖ St1 Refinery in Gothenburg
200 000 ton HVO biofuels Q3 2023
- ❖ SCA in Östrand w St1
300 000 ton HVO biofuels 2025?
- ❖ Preem Gothenburg
650-950 000 m3 HVO biofuels 2024
- ❖ Liquid Wind w Övik Energi
50 000 m3 biomethanol 2024
- ❖ Project AIR Perstorp at Stenungsund
200 000 m3 biomethanol 2025
- ❖ SkyFuelH2 Uniper+Sasol in Långsele
100 000 ton SAF 2024
- ❖ Vattenfall+Shell+LanzaTech in Forsmark
50 000 ton SAF for SAS 2026
- ❖ St1 Refinery in Gothenburg
200 000 ton HVO biofuels 2026
- ❖ Preem Gothenburg
Tot capacity 5 M m3 HVO fuels 2030

Selected plants, e.g. biogas plants not shown.